PATENT CUSTOMER NUMBER 22,852
Attorney Docket No. 09877.0189

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	)	
	)	
Giacomo Stefano Roba *et al.*	)	Group Art Unit: 1791
	)	
Application No.: 09/986,622	)	Examiner: John M. Hoffman
	)	
Filed: November 9, 2001	)	
	)	
For: METHOD AND INDUCTION FURNACE FOR DRAWING LARGE DIAMETER PREFORMS TO OPTICAL FIBRES	)	Confirmation No.: 5933

MAIL STOP APPEAL BRIEF – PATENTS
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Sir:

APPEAL BRIEF

This is an appeal to the Board of Patent Appeals and Interferences ("the Board") from the Final Office Action dated August 15, 2008 ("Final Office Action"), finally rejecting claims 51-69 in the above-referenced patent application. The appealed claims, as rejected, are set forth Section VIII ("Claims Appendix").

On November 14, 2008, Appellant filed a Notice of Appeal. In support of the Notice of Appeal, pursuant to 37 C.F.R. § 41.37, Appellant presents this Appeal Brief.

I. Real Party In Interest

The real party in interest is PRYSMIAN CAVI E SISTEMI ENERGIA, S.R.L., the assignee of record as reflected in the assignment recorded on August 28, 2006, at Reel 018171 and Frame 0452.

II. Related Appeals and Interferences

To the knowledge of Appellant, the Appellant's undersigned legal representatives, and the assignee, the only prior appeal, interference or judicial proceeding that, according to the standards set forth in MPEP § 1205.02(ii), may directly affect, may be directly affected by, or may have a bearing on the Board's decision in the pending appeal is the February 13, 2008 Notice of Appeal and Pre-Appeal Brief Request for Review filed by Appellant in this application, No. 09/986,622. A copy of the Notice of Panel Decision from Pre-Appeal Brief Review is included in Section X, Related Proceedings Appendix.

To the knowledge of Appellant, the Appellant's undersigned legal representatives, and the assignee, there are no pending appeals, interferences or judicial proceedings that, according to the standards set forth in MPEP §1205.02(ii), may directly affect, may be directly affected by, or may have a bearing on the Board's decision in the pending appeal.

III. Status of Claims

Claims 51-69 are pending in this application. Claims 1-26 and 31-50 have been canceled. Claims 27-30 have been withdrawn from consideration. Claims 51-69 have been finally rejected and are appealed.

IV. Status of Amendments

All amendments have been entered. No amendments have been filed subsequent to the Final Office Action mailed August 15, 2008.

V. Summary of Claimed Subject Matter

Claim 51, one of two independent claims in this application, is directed to a drawing furnace for drawing an optical preform.[1] Spec. at p. 1, ll. 3-8; Fig. 1. The furnace comprises a furnace body having an upper end and a lower end. *Id.* at p. 13, l. 19; Fig. 2. The furnace body comprises at least a susceptor and an induction coil. *Id.* at p. 13, ll. 19-22; p. 19, ll. 9-18; Figs. 3, 8, 9. The furnace body also includes an insulating material disposed between the susceptor and the induction coil. *Id.* at p. 13, ll. 19-22; p. 23. l. 7-p. 24, l. 13; Fig. 2. The furnace also comprises a muffle connected to the upper end of the furnace body. *Id.* at p. 27, l. 27-p. 28, l. 6; Fig. 4. The muffle includes a mechanical seal for avoiding inlet of ambient air into the furnace. *Id.* at p. 28, ll. 32-33; p. 31, ll. 12-19; p. 13, ll. 13-25; Figs. 4, 7. The muffle is adapted to surround the optical preform before the preform is moved into the furnace body. *Id.* at p. 27, ll. 29-33; Fig. 4. The furnace also includes a bottom portion connected to the lower end of the furnace and comprising at least a lower portion with a decreasing cross-sectional area from the top to the bottom of the bottom portion in a plane perpendicular to the longitudinal axis. *Id.* at p. 15, l. 32-p. 16, l. 5; Fig. 2.

The furnace also includes a distributor body having a substantially annular distribution chamber (*Id.* at p. 13, ll. 31-33; Figs. 4, 5), a distribution ring (*Id.* at p. 30, ll. 3-8; Fig. 4) and an outlet in fluid communication with an interior of the muffle (*Id.* at p. 14, ll. 1-3; Figs. 4, 5). The distributor body is configured to receive conditioning gas

[1] The references to the specification and drawings in this Appeal Brief are merely intended to facilitate explaining how the originally filed application provides exemplary embodiments and exemplary disclosure relating to the claimed subject matter. Those references should not be construed as limiting the claims.

substantially tangentially with respect to the substantially annular distribution chamber. *Id.* at p. 29, ll. 17-26; Fig. 5. The distribution ring is adapted to uniformly introduce and forcedly direct a first portion of the conditioning gas into the muffle in a downward direction towards the furnace body. *Id.* at p. 30, ll. 3-27; Fig. 4. The distribution ring is also adapted to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace. *Id.* at p. 31, ll. 7-19; Fig. 4.

Claim 61, the second of the independent claims in this application, is also directed to a drawing furnace for drawing an optical preform. Spec. at p. 1, ll. 3-8; Fig. 1. The furnace comprises a furnace body having an upper end and a lower end. *Id.* at p. 13, l. 19; Fig. 2. The furnace body comprises at least a susceptor and an induction coil. *Id.* at p. 13, ll. 19-22; p. 19, ll. 9-18; Figs. 3, 8, 9. The furnace body also includes an insulating material disposed between the susceptor and the induction coil. *Id.* at p. 13, ll. 19-22; p. 23. l. 7-p. 24, l. 13; Fig. 2. The furnace also comprises a muffle connected to the upper end of the furnace body. *Id.* at p. 27, l. 27-p. 28, l. 6; Fig. 4. The muffle includes a mechanical seal for avoiding inlet of ambient air into the furnace. *Id.* at p. 28, ll. 32-33; p. 31, ll. 12-19; p. 13, ll. 13-25; Figs. 4, 7. The muffle is adapted to surround the optical preform before the preform is moved into the furnace body. *Id.* at p. 27, ll. 29-33; Fig. 4. The furnace also includes a bottom portion connected to the lower end of the furnace and comprising at least a lower portion with a decreasing cross-sectional area from the top to the bottom of the bottom portion in a plane perpendicular to the longitudinal axis. *Id.* at p. 15, l. 32-p. 16, l. 5; Fig. 2.

The furnace also includes a distributor body having a substantially annular distribution chamber (*Id.* at p. 13, ll. 31-33; Figs. 4, 5), a distribution ring (*Id.* at p. 30, ll. 3-8; Fig. 4) and an outlet in fluid communication with an interior of the muffle (*Id.* at p. 14, ll. 1-3; Figs. 4, 5). The distributor body is configured to receive conditioning gas substantially tangentially with respect to the substantially annular distribution chamber. *Id.* at p. 29, ll. 17-26; Fig. 5. The distributor body includes at least one downwardly angled channel operable to forcedly direct a first portion of the conditioning gas into the muffle in a downward direction towards the furnace body. *Id.* at p. 30, ll. 3-27; Fig. 4. The distributor body also includes at least one upwardly angled path to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace. *Id.* at p. 31, ll. 7-19; Fig. 4.

VI. Grounds of Rejection to be Reviewed on Appeal

There are three issues or grounds of rejection to be reviewed on appeal:

1. Claims 61-69 stand rejected under 35 U.S.C. § 112, ¶ 2. Final Office Action at 2-3.

2. Claims 51-69 stand rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. U.S. Patent Application No. 2002/0029591 ("Dickinson") (or U.S. Patent No. 5,284,499 ("Harvey")) in view of JP 08091862 ("Kazuya"), U.S. Patent No. 5,160,359 ("Strackenbrock"), U.S. Patent No. 4,988,374 ("Harding"), and U.S. Patent No. 4,547,644 ("Bair"), and optionally in view of U.S. Patent No. 4,030,901 ("Kaiser"). Final Office Action at 4.

VII. ARGUMENT

A. Claims Rejections Under 35 U.S.C. § 112, ¶ 2

In the August 15th Final Office Action, the Examiner rejected claims 61-69 under 35 U.S.C. § 112, ¶ 2, as being indefinite. Specifically, the Examiner objected to the term "angled path" as recited in claim 61 for the reasons quoted below.

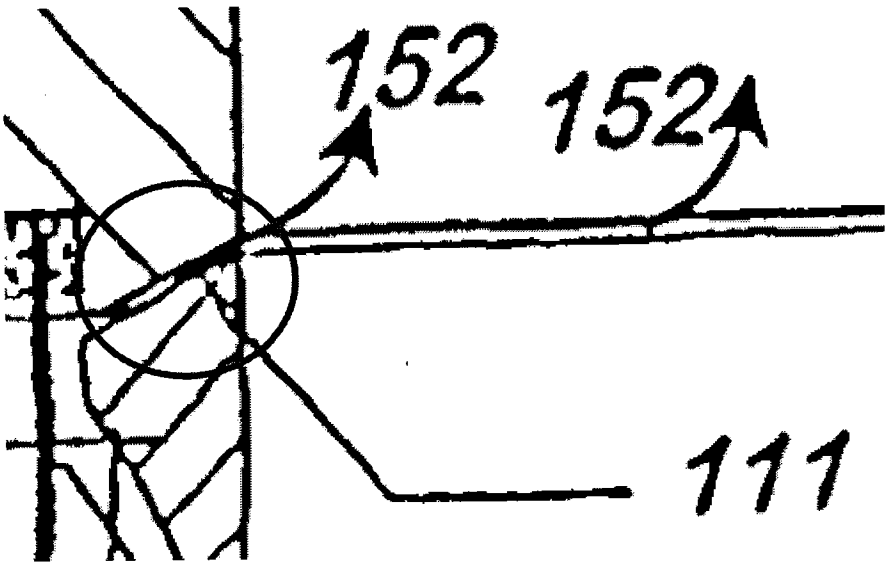
> 1) The paths 152 seem to be a flow of gas, however moving gas is generally not structure - and yet claim 61 requires the distributor body has the paths.
>
> 2) Whereas the specification states the paths are 'annular', the drawings fail to confirm such.
>
> 3) 111, 107 and 103 at best only define an upper and lower limit of a part of the paths shown in the drawings. One cannot reasonable ascertain whether the claimed "path" can be unbounded path that gas can flow, or whether they are limited to paths that are bounded/defined by structure.

Final Office Action at 2-3. For at least the reasons discussed below, Appellants respectfully submit that the § 112, ¶ 2, rejection of claims 61-69 is improper and should be reversed.

1. The Specification Indicates that the "Upwardly Angled Path" Is Defined by Structure

The Examiner asserts that the term "upwardly angled path" recited in claim 61 is indefinite because it is unclear whether "path" refers only to a flow of gas. Appellant respectfully disagrees, as the claim language and specification make clear that the "upwardly angled path" is defined by structure. As the Examiner observes, claim 61 recites the "distributor body including . . . at least one upwardly angled path," indicating

that the path is part of the distributor body, a structural element. This is confirmed by the specification, which states that "gas can flow through the upward-angled annular path 152." App.'s Spec. at 31, ll. 9-10. By stating that gas flows ***through*** the upwardly angled path, the specification indicates that the path is defined by structure and that the "upward-angled path" does not refer simply to a flow of gas. In fact, the specification specifically states that the path is "defined by upper surface 111 of distribution ring 107 and distributor casing top 103." *Id.* at 31, ll. 10-11. Consistent with this disclosure, Figure 4 of Appellant's specification illustrates that the "upwardly angled path" is in fact defined by the structure described in the specification (circled in the excerpt of Figure 4 below).



App.'s Spec. at Fig. 4.

Accordingly, based on the claim language, and as confirmed by the specification, one of ordinary skill in the art would understand that the "upwardly angled path" recited in claim 61 is defined by structure, and does not refer merely to a flow of gas.

2. The Figures Do Not Render the Term "Upwardly Angled Path" Indefinite

The Examiner also asserts that one of ordinary skill in the art would be confused regarding what the claims require because "the specification states the paths are 'annular', [but] the drawings fail to confirm such." Final Office Action at 2. While the specification indicates that the upwardly angled path may be annular (*e.g.*, Spec. at p. 31, ll. 9-10), claim 61 does not require that the "upwardly angled path" be annular. Accordingly, at least because the claims do not require the upwardly angled path to be annular, the figures are not required to specifically depict an embodiment in which the upwardly angled path is annular. Appellant further respectfully submits that because the claims do not recite a requirement that the upwardly angled path be annular, one of ordinary skill in the art would not believe that the claims were limited to an embodiment in which the upwardly angled path is annular.

3. One of Ordinary Skill in the Art Would Not Be Confused as to Whether the "Upwardly Angled Path" Can Be Unbounded

The Examiner asserts that the term "upwardly angled path" is indefinite because "[o]ne cannot reasonable ascertain whether the claimed 'path' can be unbounded path that gas can flow, or whether they are limited to paths that are bounded/defined by structure." Final Office Action at 3. As discussed above in Section (VII)(A)(1), the claims and specification are clear that the upwardly angled path is defined by structure.

The Examiner notes that elements 111, 107, and 103 define only an upper and lower limit of the upwardly angled path, and therefore asserts that it is unclear whether the upwardly angled path can be unbounded in other directions. However, the specification clearly indicates that the upwardly angled path terminates in chamber 122 (App.'s Spec. at 31, ll. 10-11), and originates in annular distribution chamber 109 (Fig. 4). While Figure 4 of Appellant's specification does not depict the sides of the upwardly angled path because it is a cross-section view taken on a plane through a diameter of the furnace (App.'s Spec. at 17, ll. 4-7, 12-15), the fact that elements 103 and 104 are described as the distributor *casing* top and bottom, respectively, illustrates that they enclose the annular distribution chamber 109, from which the upwardly angled path extends. Accordingly, one of ordinary skill in the art would understand that the upwardly angled path recited in claim 61 is not "unbounded," as suggested by the Examiner.

This is particularly true given that the purpose of the recited distributor body is to receive conditioning gas for use in a drawing furnace for drawing an optical preform. As claim 61 recites, the upwardly angled path directs a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace. Were the paths through which the conditioning gas flows unbounded, one of ordinary skill in the art would understand that the distributor body would not serve its intended purpose, because the conditioning gas would be released to the surrounding environment. Accordingly, because one of ordinary skill in the art would not be confused as to whether the recited upwardly angled path can be "unbounded," Appellant respectfully requests that the rejection under § 112, ¶ 2, be reversed.

In light of those positions already of record, and the further explanation offered herein, Appellant respectfully submits that the Board should reverse the rejection of claims 61-69 under 35 U.S.C. § 112, ¶ 2.

B. Rejection of the Claims Under 35 U.S.C. §103(a)

In the Final Office Action, the Examiner rejected claims 51-69 as being obvious over U.S. Patent Application No. 2002/0029591 ("Dickinson") (or U.S. Patent No. 5,284,499 ("Harvey")) in view of JP 08091862 ("Kazuya"), U.S. Patent No. 5,160,359 ("Strackenbrock"), U.S. Patent No. 4,988,374 ("Harding"), and U.S. Patent No. 4,547,644 ("Bair"), and optionally in view of U.S. Patent No. 4,030,901 ("Kaiser").

1. Rejection of Claims 51-60 Under § 103(a)

Claim 51 recites, among other things,

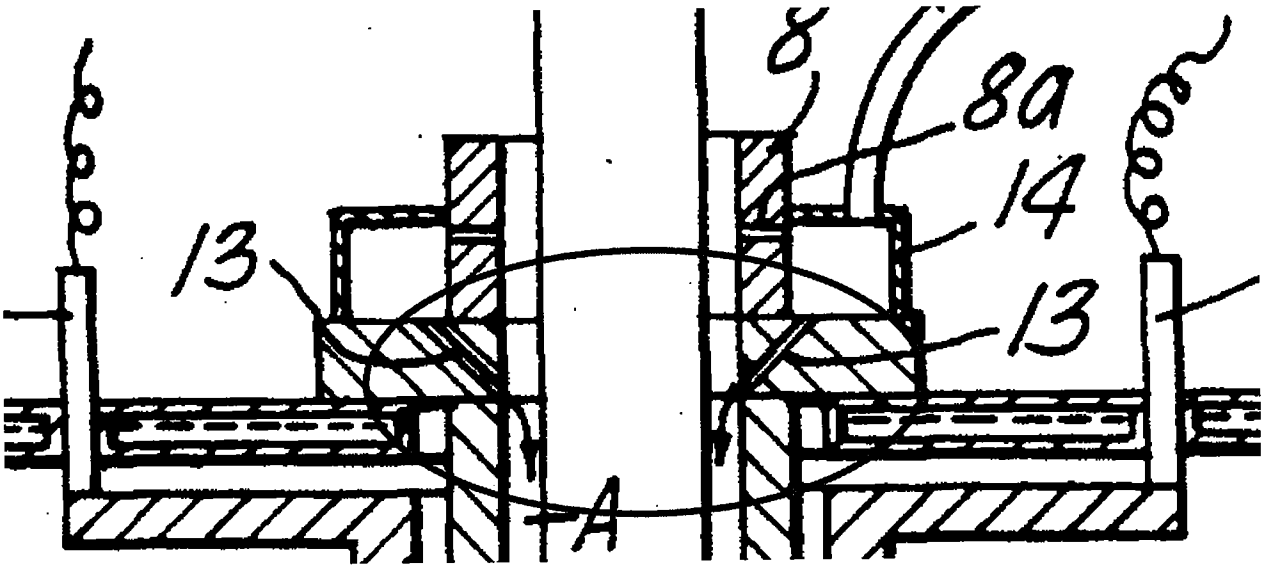
> a distributor body having a substantially annular distribution chamber, a distribution ring, and an outlet in fluid communication with an interior of the muffle...the distribution ring being adapted to uniformly introduce and forcedly direct a first portion of the conditioning gas into the muffle in a downward direction towards said furnace body and to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace.

The Examiner asserts that Harding discloses a distributor body "inherently capable" of satisfying this recitation "depending upon the operating conditions being used." Final Office Action at 5. But "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Here, the Examiner does not articulate any evidence supporting his assertion that Harding inherently discloses the above-quoted

subject matter recited in claim 51. In actuality, Harding clearly does not disclose this subject matter.

a. Harding Does Not Disclose the Recited Distributor Ring

Nothing in Harding discloses a distributor ring adapted to "direct a second portion of conditioning gas upward to an upper portion of a substantially annular distribution chamber to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace." To the contrary, Harding teaches only downwardly angled channels 13 for introducing gas into the furnace. Harding at Fig. 1. As illustrated below in the circled portion of the excerpt from Harding's Figure 1, Harding indicates only that gas flows in a downward direction out of the downwardly angled channels.



Harding at Fig. 1.

While acknowledging that Harding only indicates gas flowing downwardly, the Examiner asserts that "[t]his does not detract from the inherent capability that the apparatus can be used to direct a gas flow in an upward direction." Final Office Action

at 13. But the Examiner points to nothing indicating that Harding's downwardly angled channels 13 can be used to direct gas upward. Indeed, the Examiner does not allege that Harding's distribution ring is adapted to direct a second portion of the conditioning gas to an upper portion of the distribution chamber.

Instead, the Examiner suggests that "one can place a vacuum above the furnace to cause gas to go up. Or one can place a pressurizing device at the bottom of the furnace. Or one can pulse gas into 15, and seal the bottom which will cause gas to flow down and then up." Final Office Action at 11. With the Examiner's proposed modifications to Harding, it is not the distribution ring that would direct conditioning gas to an upper portion of the distribution chamber, but instead some other structure, such as a vacuum or a pressurizing device. Thus, the Examiner ignores the language of claim 51 reciting that it is the "distribution ring" that is "adapted . . . to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber." For this reason, the Examiner's assertion that Harding inherently discloses the above-quoted recitation of claim 51 is incorrect.

b. Harding's Furnace Does Not Necessarily Direct Gas to an Upper Portion of the Distribution Chamber

As discussed above, the rejection of claim 51 is improper because the Examiner has not asserted that Harding has a distribution ring inherently adapted to direct a second portion of conditioning gas to an upper portion of a distribution chamber, as recited in claim 51. But even ignoring claim 51's recitation that the distribution ring is adapted to direct the conditioning gas, the Examiner is incorrect that Harding, specifically, or the cited combination generally, inherently discloses a furnace body

being "adapted . . . to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber."

"Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient to establish inherency." *Scaltech, Inc. v. Retec/Tetra, L.L.C.*, 178 F.3d 1378, 1384 (Fed. Cir. 1999). Instead, a claim feature is inherent "only when the reference discloses prior art that must necessarily include the unstated limitation." *Atofina v. Great Lakes Chem. Corp.*, 441 F.3d 991, 1000 (Fed. Cir. 2006).

Here, Harding's furnace is clearly not necessarily adapted to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber, as recited in claim 51. Instead, it discloses only directing gas in a downward direction. Harding at Fig. 1. At most, the Examiner identifies ways in which Harding could be modified to possibly direct conditioning gas to an upper portion of its distribution chamber, such as by placing a vacuum above the furnace or placing a pressurizing device at the bottom of the furnace. Final Office Action at 11. But since Harding does not disclose such additional structures, the Examiner's proposed modifications clearly are not necessarily the result of Harding's disclosure. Thus, Harding does not inherently disclose a distributor body being "adapted . . . to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber."

Accordingly, because the cited combination does not teach or suggest a distribution ring "adapted . . . to direct a second portion of the conditioning gas to an

upper portion of the substantially annular distribution chamber," the Examiner has not established a *prima facie* case of obviousness.

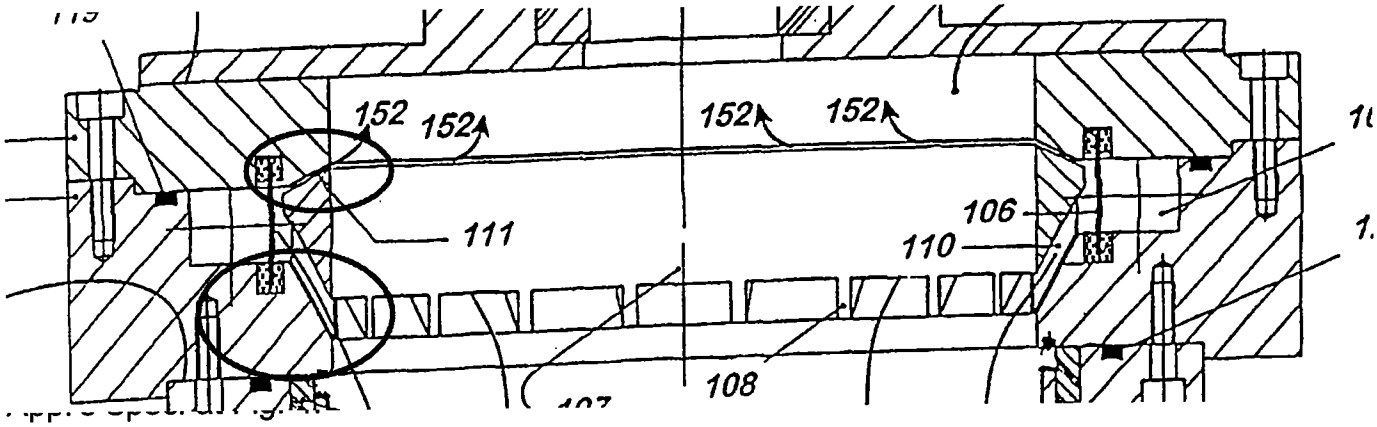
c. Harding Does Not Disclose a Distribution Ring Adapted to Create the Recited Buffer of Conditioning Gas

Furthermore, even if it were hypothetically true that one of ordinary skill in the art would understand Harding to inherently disclose a distribution ring "adapted . . . to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber" (Appellant disagrees), the Examiner has not shown that Harding inherently discloses a distributor body adapted to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace, as recited in claim 51. While the Examiner asserts that nothing is needed to create a pressure buffer except pressure and an empty volume (Final Office Action at 13), this does not explain why one of ordinary skill in the art would understand that Harding's furnace would necessarily disclose a distribution ring adapted to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace.

Furthermore, the Examiner has also failed to point to any operating conditions that would be obvious to one of ordinary skill in the art under which Harding's apparatus would hypothetically create the recited buffer of conditioning gas. Instead, the Examiner states that

> The fact that applicant is able to cause gas to flow in both up direction and down directions, by taking the action of providing a pressurized gas source to the claimed furnace - suggests that claimed functionality can be created by applying a pressure differential across any free path in any furnace preform - and thus is an inherent functionality of any optical fiber preform furnace with a free path.

Final Office Action at 12. However, this statement incorrectly suggests that Appellant's specification shows a single channel through which air is directed both upwardly and downwardly. To the contrary, Appellant's specification shows both (i) a downwardly angled channel to forcedly direct a first portion of the conditioning gas into the muffle in a downward direction; and (ii) an upwardly angled path to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber. This is illustrated in the circled portions of the below excerpt of Appellant's Figure 4. The Examiner has pointed to no such features in Harding or the other cited references that would either necessarily result, in or that teaches or suggests, a distribution ring adapted to "create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace," as recited in claim 51.



Spec. at 4.

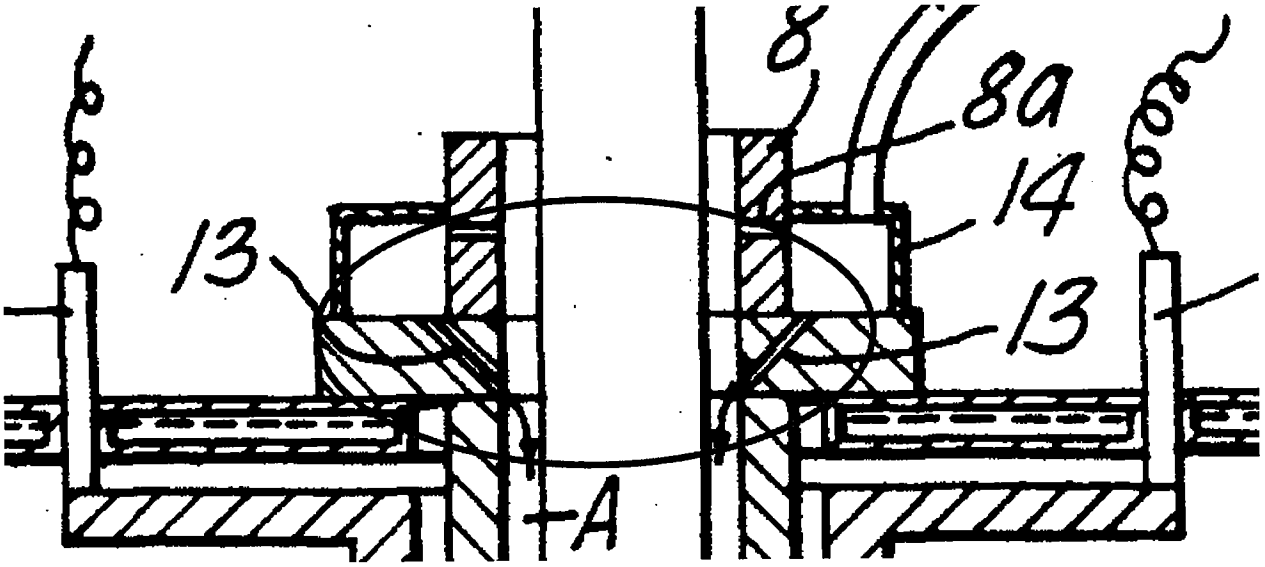
Accordingly, the Examiner has failed to establish that the cited combination teaches or suggests a distribution ring "adapted . . . to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber to create a buffer of conditioning gas having a pressure higher than a pressure outside the

drawing furnace." In light of those positions already of record, and the further explanation offered herein, Appellant respectfully submits that the Board should reverse the rejection of claim 51, as well as dependent claims 52-60, under 35 U.S.C. § 103(a).

2. Rejection of Claims 61-69 Under § 103(a)

The Examiner also rejected claims 61-69 under § 103 as being obvious over Dickinson (or Harvey) in view of Kazuya, Strackenbrock, Harding, and Bair, and optionally in view of Kaiser. Claim 61 recites, among other things, a distributor body including "at least one upwardly angled path to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace."

The Examiner asserts that Harding's feature 8A satisfies this recitation, contending that "[g]as that flows through 8A will inherently flow towards an area with lower pressure - that is - upwardly." Final Office Action at 9. The Examiner's rejection appears to be based on his interpretation of the term "upwardly angled path" as not requiring any structure. Final Office Action at 9. As discussed above with respect to the Examiner's rejection under 35 U.S.C. § 112, ¶ 2, claim 61 requires that the upwardly angled path be defined by structure. Harding clearly does not disclose an upwardly angled path. Instead, as shown in Harding's Figure 1, Harding discloses only a downwardly angled path (element 13) for introducing gas into a drawing furnace.



Harding at Fig. 1.

Furthermore, even if Harding were to hypothetically disclose an upwardly angled path, as discussed above with respect to claim 51, it does not disclose "at least one upwardly angled path to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace." This recitation is not inherently disclosed by Harding unless it would necessarily result from Harding's disclosure—possibility is not sufficient. The Examiner has pointed to no evidence that Harding's furnace is necessarily adapted to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace.

Accordingly, Harding does not disclose at least claim 61's recitation of "at least one upwardly angled path to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace." In light of those positions already of record, and the further explanation offered herein,

Appellant respectfully submits that the Board should reverse the rejection of claim 61, as well as dependent claims 62-69, under 35 U.S.C. § 103(a).

C. Conclusion

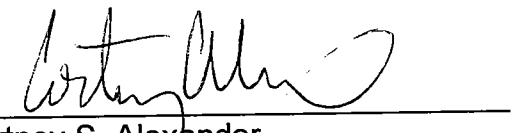
As discussed above, the Examiner has not presented a proper rejection under 35 U.S.C. §112, ¶ 2, nor has the Examiner presented a *prima facie* case of obviousness based on Dickinson (or Harvey) in view of Kazuya, Strackenbrock, Harding, Bair, and optionally in view of Kaiser. Appellant therefore respectfully requests that the Board reverse the Examiner's improper claim rejections under 35 U.S.C. §112, ¶ 2, and 35 U.S.C. §103(a), so that all of pending claims 51-69 may be allowed.

If any extension of time under 37 C.F.R. §1.136 is required to obtain entry of this Appeal Brief, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 41.20 that are not expressly authorized herewith, including any fees required for an extension of time under 37 C.F.R. §§1.136 and 1.17, please charge such fees to our Deposit Account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, L.L.P.

Dated: February 17, 2009

By: 

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VIII. Claims Appendix

1-26. (Canceled)

27. (Withdrawn) A method for drawing an optical preform of large diameter into an optical fiber or into a preform of smaller diameter, said method comprising:

a) introducing said optical preform into a drawing furnace through a top chimney connected to said furnace, said drawing furnace further comprising a bottom chimney;

b) mechanically sealing the upper portion of said top chimney;

c) heating the bottom end of said preform into the furnace to its softening temperature;

d) introducing a flow of conditioning gas into said top chimney by imparting a downward angled direction to said flow of conditioning gas entering said top chimney; and

e) allowing said gas to flow from said furnace body to said bottom chimney and then outside from said bottom chimney, the speed of the conditioning gas in at least a lower portion of said bottom chimney having a gradient substantially constant or slightly increasing.

28. (Withdrawn) A method according to claim 27, wherein said downward angled direction forms an angle of less than about 45° with respect to the longitudinal axis of the drawing furnace.

29. (Withdrawn) A method according to claim 27, wherein said downward angled direction forms an angle of from about 40° to about 20° with respect to the longitudinal axis of the drawing furnace.

30. (Withdrawn) A method according to claim 27, wherein the increment of the velocity of the gas within said lower portion is from about 1/10 to about 1/100 per mm of height of said lower portion with respect to the velocity of the gas entering into said lower portion.

31-50. (Canceled).

51. (Previously Presented) A drawing furnace for drawing an optical preform, said furnace comprising:

a furnace body having an upper end and a lower end and comprising at least a susceptor, an induction coil and an insulating material disposed between said susceptor and said induction coil;

a muffle connected to the upper end of said furnace body, said muffle comprising a mechanical seal for avoiding inlet of ambient air into the furnace, said muffle being adapted to surround the optical preform before the optical preform is moved into said furnace body;

a bottom portion connected to the lower end of said furnace and wherein said bottom portion comprising at least a lower portion with a decreasing cross-sectional

area from the top to the bottom of the bottom portion in a plane perpendicular to the longitudinal axis; and

a distributor body having a substantially annular distribution chamber, a distribution ring, and an outlet in fluid communication with an interior of the muffle, the distributor body configured to receive conditioning gas substantially tangentially with respect to the substantially annular distribution chamber, the distribution ring being adapted to uniformly introduce and forcedly direct a first portion of the conditioning gas into the muffle in a downward direction towards said furnace body and to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace.

52. (Previously Presented) A drawing furnace according to claim 51, further comprising a feed duct leading from a source of conditioning gas to said annular chamber, said duct being tangentially disposed with respect to said chamber.

53. (Previously Presented) A drawing furnace according to claim 51, wherein a plurality of fins is radially disposed within the outlet.

54. (Previously Presented) A drawing furnace according to claim 51, wherein a porous filter is disposed inside the distributor body and interposed between the annular distribution chamber and the downward-angled outlet.

55. (Previously Presented) A drawing furnace according to claim 51, wherein a substantially ring-shaped resilient seal is provided on the interior wall of the support collar, said seal preventing ambient atmosphere from entering into the furnace while allowing the preform or the mother rod to be removed from the interior of the furnace through said support collar without sticking to said seal.

56. (Previously Presented) A drawing furnace according to claim 55, wherein said seal defines a seal height and comprises a seal seat having a seat height, and two opposing seal walls, each of which extends from the seal seat, the ratio of the seal height to the seat height being less than about 2:1, preferably from about 2:1 to about 1.4:1.

57. (Previously Presented) A drawing furnace according to claim 56, wherein said bottom portion comprises at least a lower portion tapered in the form of a substantially frusto-conical shaped nozzle that is angled from about 12° to about 16° with respect to the longitudinal axis of the furnace.

58. (Previously Presented) A drawing furnace according to claim 57, wherein said frusto-conical shaped nozzle has a height of from about 200 mm to about 300 mm.

59. (Previously Presented) A drawing furnace according to claim 57, wherein said frusto-conical shaped nozzle is provided at its bottom end with a shutter portion

connected to the bottom of said nozzle, defining an exit aperture that is adjustable to control the size of the exit aperture.

60. (Previously Presented) A drawing furnace according to claim 57, wherein the bottom portion further comprises an inner wall and an outer wall, which together define a cooling space, through which cooling fluid is circulated to cool the interior of the bottom portion surrounded by said cooling space.

61. (Previously Presented) A drawing furnace for drawing an optical preform, said furnace comprising:

a furnace body having an upper end and a lower end and comprising at least a susceptor, an induction coil and an insulating material disposed between said susceptor and said induction coil;

a muffle connected to the upper end of said furnace body, said muffle comprising a mechanical seal for avoiding inlet of ambient air into the furnace, said muffle being adapted to surround the optical preform before the optical preform is moved into said furnace body;

a bottom portion connected to the lower end of said furnace and wherein said bottom portion comprising at least a lower portion with a decreasing cross-sectional area from the top to the bottom of the bottom portion in a plane perpendicular to the longitudinal axis; and

a distributor body having a substantially annular distribution chamber, a distribution ring, and an outlet in fluid communication with an interior of the muffle, the

distributor body configured to receive conditioning gas substantially tangentially with respect to the substantially annular distribution chamber, the distributor body including (i) at least one downwardly angled channel operable to forcedly direct a first portion of the conditioning gas into the muffle in a downward direction towards said furnace body and (ii) at least one upwardly angled path to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace.

62. (Previously Presented) A drawing furnace according to claim 61, further comprising a feed duct leading from a source of conditioning gas to said annular chamber, said duct being tangentially disposed with respect to said chamber.

63. (Previously Presented) A drawing furnace according to claim 61, wherein a plurality of fins is radially disposed within the outlet.

64. (Previously Presented) A drawing furnace according to claim 61, wherein a porous filter is disposed inside the distributor body and interposed between the annular distribution chamber and the downward-angled outlet.

65. (Previously Presented) A drawing furnace according to claim 61, wherein a substantially ring-shaped resilient seal is provided on the interior wall of the support collar, said seal preventing ambient atmosphere from entering into the furnace while

allowing the preform or the mother rod to be removed from the interior of the furnace through said support collar without sticking to said seal.

66. (Previously Presented) A drawing furnace according to claim 65, wherein said seal defines a seal height and comprises a seal seat having a seat height, and two opposing seal walls, each of which extends from the seal seat, the ratio of the seal height to the seat height being less than about 2:1, preferably from about 2:1 to about 1.4:1.

67. (Previously Presented) A drawing furnace according to claim 66, wherein said bottom portion comprises at least a lower portion tapered in the form of a substantially frusto-conical shaped nozzle that is angled from about 12° to about 16° with respect to the longitudinal axis of the furnace.

68. (Previously Presented) A drawing furnace according to claim 67, wherein said frusto-conical shaped nozzle has a height of from about 200 mm to about 300 mm.

69. (Previously Presented) A drawing furnace according to claim 67, wherein said frusto-conical shaped nozzle is provided at its bottom end with a shutter portion connected to the bottom of said nozzle, defining an exit aperture that is adjustable to control the size of the exit aperture.

IX. Evidence Appendix

None.

X. Related Proceedings Appendix

A copy of the Notice of Panel Decision from Pre-Appeal Brief Review in response to the Notice of Appeal and Pre-Appeal Brief Request for Review filed by Appellant in this application, No. 09/986,622, is attached.

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	09/986,622	ROBA ET AL.	
	CHRISTOPHER A. FIORILLA	Art Unit 1700	
Document Code - AP.PRE.DEC			

Notice of Panel Decision from Pre-Appeal Brief Review

This is in response to the Pre-Appeal Brief Request for Review filed 2/13/08.

1. ☐ **Improper Request** – The Request is improper and a conference will not be held for the following reason(s):

☐ The Notice of Appeal has not been filed concurrent with the Pre-Appeal Brief Request.
☐ The request does not include reasons why a review is appropriate.
☐ A proposed amendment is included with the Pre-Appeal Brief request.
☐ Other:

The time period for filing a response continues to run from the receipt date of the Notice of Appeal or from the mail date of the last Office communication, if no Notice of Appeal has been received.

2. ☐ **Proceed to Board of Patent Appeals and Interferences** – A Pre-Appeal Brief conference has been held. The application remains under appeal because there is at least one actual issue for appeal. Applicant is required to submit an appeal brief in accordance with 37 CFR 41.37. The time period for filing an appeal brief will be reset to be one month from mailing this decision, or the balance of the two-month time period running from the receipt of the notice of appeal, whichever is greater. Further, the time period for filing of the appeal brief is extendible under 37 CFR 1.136 based upon the mail date of this decision or the receipt date of the notice of appeal, as applicable.

☐ The panel has determined the status of the claim(s) is as follows:
Claim(s) allowed: _____.
Claim(s) objected to: _____.
Claim(s) rejected: _____.
Claim(s) withdrawn from consideration: _____.

3. ☐ **Allowable application** – A conference has been held. The rejection is withdrawn and a Notice of Allowance will be mailed. Prosecution on the merits remains closed. No further action is required by applicant at this time.

4. ☒ **Reopen Prosecution** – A conference has been held. The rejection is withdrawn and a new Office action will be mailed. No further action is required by applicant at this time.

All participants:

(1) *Chris Fiorilla*.

(2) *Yogendra Gupta*.

(3) *John Hoffman*.

(4)_____.